

Appl. No. 10/707,932
Amdt. dated November 23, 2005
Reply to Office action of September 07, 2005

Amendments to the Drawings:

The attached sheets of drawings include changes to Figs.2-3. These sheets replace the original sheets that include Figs.2-3.

- 5 Changes to the drawings 2-3 include adding some of the item label numbers and these changes are detailed in the REMARKS section of this response. No new matter has been introduced.

Attachment: Replacement Sheet 2 pages
Annotated Sheet Showing Changes 2 pages

10

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REMARKS/ARGUMENTS

1. The specification is amended to further include the label 115 depicting the inner side of the passivation and 117 depicting the outer side of the passivation. No new matter is entered.

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2. *The drawings are objected under 37 CFR 1.83(a).*

The drawings must show every feature of the invention specified in the claims. Therefore, the inner side and outer side of the passivation structure, and driving circuit, active driving circuit, and thin film transistors must be shown or the feature(s) canceled from the claim(s).

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Response:

Amendments to Figs. 2-3 required by the Examiner to include the following reference signs mentioned in the description is made:

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(1) #115 in Figs. 2-3, depicting the inner side of the passivation,

(2) # 117 in Figs. 2-3, depicting the outer side of the passivation.

The corresponding description in the specification has been amended as shown above.

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Claims 9-10 are canceled to overcome the drawings objection. The driving circuit, the active driving circuit, and the thin film transistor are consequently not shown in the amended drawings and the replacement sheets.

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No new matter is entered. Consideration of the amendment to Figs.2-3 is respectfully requested.

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3. Claims 1-8 are rejected under 35 U.S.C 103(a) as being patentable over Graff (US 6,570,325) in view of Kim (US 6,344,884).

5 Response:

Claim 1 in the present application recites a display device comprising a substrate, a display unit disposed on the substrate, and a passivation structure formed of an organic/inorganic film covering the display unit and
10 the substrate. And an inner side, which is closer to the display unit, of the passivation structure has a higher organic/inorganic ratio than an outer side, which is farther from the display unit, and the organic/inorganic ratio gradually decreases from the inner side of the passivation structure toward the outer side of the passivation
15 structure.

According to lines 56-62, column 4 and Fig. 1, Graff discloses an encapsulated organic light emitting device (OLED) 100 comprising a substrate 105, an OLED 110, and a first barrier stack 115. The first barrier
20 stack 115 includes first decoupling layers 120, 125 and first barrier layer 130 sandwiched between the first decoupling layers 120, 125. The first barrier stack 115 taught by Graff is a multi-layered structure not a one-layered structure as disclosed in the present application.

25 According to lines 36-60, column 3 and Figs. 3A-3C, Kim teaches a liquid crystal display (LCD) device having an organic layer 155 over a substrate 110 having TFT. The surface of the organic layer 155 is treated with H₂ plasma so that an intermediate layer 156 having O-H bonding

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structure is formed as shown in Fig. 3A. Then a patterned ITO 140 is formed on the intermediate layer 156. The coherence of the organic layer 155 and the ITO layer 140 is enhanced because the intermediate layer 156 enhances the adhesion between them. Therefore the etchant cannot
5 penetrate into regions represented as (A), (B) and (C) in Fig. 3C.

The applicant would like to point out that even if the organic layer 155 and the intermediate layer 156 are taken as one layer, it still is an organic layer, which is different from the passivation structure formed of a
10 one-layered organic/inorganic film in the present application. Although the examiner recited lines 9-12, column 5 of Kim and believed that Kim also had disclosed an inorganic layer therefore the passivation structure inclusive of the organic layer 155, the intermediate layer 156, and the inorganic layer (not shown) has a high organic/inorganic ratio gradually
15 decreases from the inner side toward the outer side of the passivation structure. The inorganic layer such as ITO is cohered with the intermediate layer 156, and it is adhered to the organic layer 155 by the intermediate layer 156. The applicant asserts that they are two individual layers (the organic layer 155, 156 and the inorganic layer 140) adhered together,
20 and there is no gradual variation in the organic/inorganic ratio between the two layers. Therefore the multi-layer structure is different from the passivation structure in the present application not only the layer amount but also in the variation in the organic/inorganic ratio.

25 As mentioned above, the applicant therefore asserts that neither Graff nor Kim has disclosed a one-layered passivation structure having gradual variation in ratio of the organic/inorganic film. Making the two-layered structure taught by Kim in the display disclosed by Graff is a completely

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different structure from the present invention. Reconsideration of claim 1 is respectfully requested.

Claims 2-3 are dependent on claim 1 and should be allowed if claim 1
5 is allowed.

Claim 4 in the present application recites that the inner side of the passivation structure has a higher organic/inorganic ratio to increase adhesion between the passivation structure and the display unit. As
10 mentioned above, Kim's teaching is a multi-layered structure. And the intermediate layer 156 is sandwiched between the organic layer 155 and the inorganic layer such as ITO 140 and is used to enhance to adhesion between them. In addition, the inorganic layer such as ITO 140 is used as a pixel electrode to drive the liquid crystal molecule, not used as a passivation.
15 Therefore the applicant asserts that claim 4 is patentably different from Kim. Reconsideration of claim 4 is respectfully requested.

Claim 5 in the present application recites that the outer side of the passivation structure has a lower organic/inorganic ratio to improve water
20 repelling ability of the passivation structure. As mentioned above, Kim's teaching is a multi-layered structure, and the inorganic layer such as ITO layer 140 is used as a pixel electrode to drive the liquid crystal molecule, not used as a passivation. The inorganic layer neither has the function to improve water repelling ability of the passivation structure.
25 Reconsideration of claim 5 is respectfully requested.

Claim 6 recites the organic/inorganic film comprises materials composed of $\text{SiO}_x\text{C}_y\text{H}_z$, $\text{SiN}_x\text{C}_y\text{H}_z$, or $\text{SiO}_w\text{N}_x\text{C}_y\text{H}_z$ compounds. Although

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Kim discloses that the organic layer 155 typically comprises C, H, and O radicals; and the inorganic layer includes ITO, silicon nitride (SiN_x) or silicon oxide (SiO_x) or metal layer such as Al, Cr, Mo, W or Ta. The organic layer 155 and the inorganic layer 140 are better cohered by the intermediate layer 156 and shall be taken as two individual layers. Compared with claim which recites the passivation structure is one-layered structure formed of an organic/inorganic film, not mention the different composition. Reconsideration of claim 6 is respectfully requested.

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Claim 7 recites that a thickness of the passivation structure is in a range of 500 to 5000 angstroms. Graff's barrier stack comprises two decoupling layers 120, 125 having a thickness of 1,000-10,000 angstroms respectively and a barrier layer having a thickness of 100-400 angstroms. Therefore the barrier stack has a thickness in a range of 2,100-20,800 angstroms, which is much larger than it of the passivation structure. The more important is, as mention above, the barrier stack is a multi-layered structure, but the passivation structure is an one-layered structure formed of an organic/inorganic film. Reconsideration of claim 7 is respectfully requested.

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Claim 8 is dependent on claim 1 and should be allowed if claim 1 is allowed.

25 4. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff (US 6,570,325) in view of Kim (US 6,344,883), in further view of Yamazaki (US 6,849,877).

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Response:

Claims 9-10 are canceled.

- 5 5. *Claim 11 is rejected under 35 U.S.C 103(a) as being unpatentable over Graff (US 6,570,325) in view of Kim (US 6,344,883), in further view of Aoyama (US 2001/0043043).*

Response:

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Claim 11 is dependent on claim 1 and should be allowed if claim 1 is allowed.

- 15 6. *Claims 12-13 are rejected under 35 U.S.C 103(a) as being unpatentable over Graff (US 6,570,325) in view of Kim (US 6,344,883), in further view of Aoyama (US 2001/0043043), in further view of Guba (US 5,739, 545).*

Response:

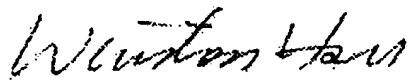
- 20 Claims 12-13 are dependent on claim 1 and should be allowed if claim 1 is allowed.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

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Sincerely yours,



Date: November 23, 2005

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Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)

Annotated Sheet Showing Changes

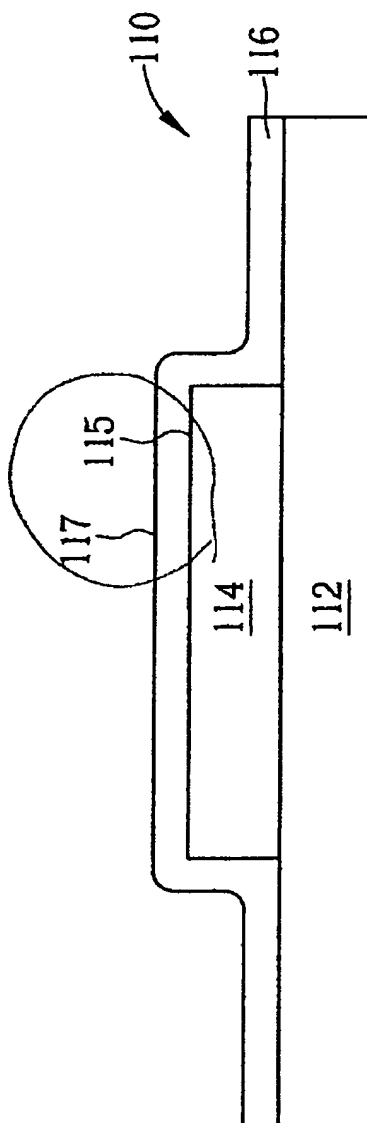


Fig. 2

Annotated Sheet Showing Changes

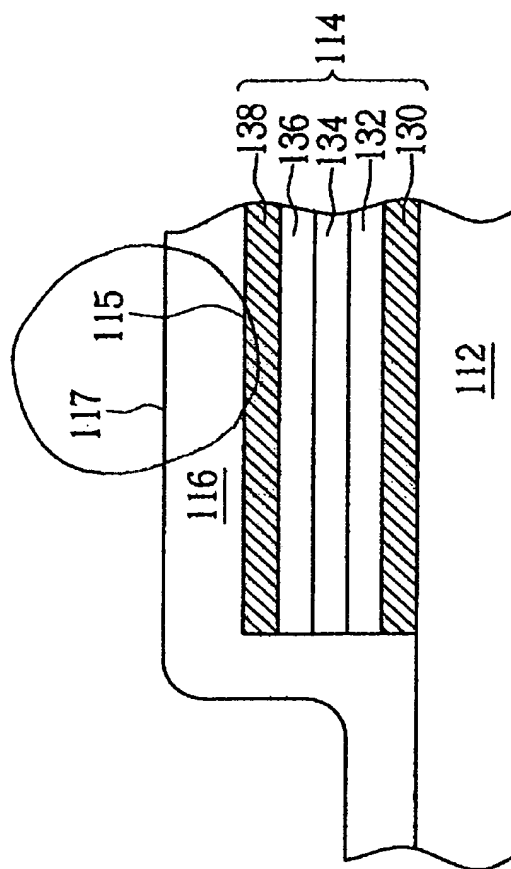


Fig. 3